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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/598,923	09/14/2006	Makoto Murata	WATAB6.001APC	2125

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EXAMINER

AHMED, SHEEBA

ART UNIT	PAPER NUMBER
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1794

NOTIFICATION DATE	DELIVERY MODE
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08/07/2009

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/598,923	Applicant(s) MURATA ET AL.	
	Examiner SHEEBA AHMED	Art Unit 1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 March 2009 and 06 April 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) 1-8 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 9-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendments

1. Claims 9 and 12 have been amended in the above-identified application.

Claims 1-12 are now pending of which **claims 9-12 are now under consideration.**

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 9-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohnishi et al. (US 5,144,464 A) in view of Pirwitz et al. (US 5,824,377 A).

Ohnishi et al. disclose a polymer liquid crystal device formed by a color polymer liquid crystal layer, generally disposed on a substrate. The color polymer liquid crystal layer includes ***a plurality of minute polymer liquid crystal elements*** (See Abstract). Polymer liquid crystals suitably used may be thermotropic liquid crystals which show nematic, smectic or cholesteric phase as a mesophase. A thermotropic polymer liquid crystal has advantages that it can be formed into a thin film and can easily retain a recorded state compared with a low-molecular weight liquid crystal. Specific examples of the polymer liquid crystal which may be used include those represented by formulas given in Columns 3 and 4 and include those claimed in instant claim 12. In the

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recording mode, a polymer liquid crystal is first held in a polydomain state in a liquid crystal phase comprising a large number of domains (minute regions). Then, the polymer liquid crystal is heated to a temperature at which it assumes an isotropic phase and then quickly cooled to below the glass transition temperature to retain the isotropic state, whereby a recording is effected. The resultant recorded region can be restored to the original polydomain state if it is heated to a temperature giving the isotropic phase or in the neighborhood thereof and then gradually cooled. Further, it is also possible to use a recording mode wherein an original, non-recorded state is formed by a light non-scattering state and a recorded state is formed in a light scattering state. The size of each minute element may be 1 m^2 or larger, preferably 10 m^2 larger. The upper limit in size of each minute element is determined from the standpoint of not giving a too coarse appearance and greatly depends on the entire size of the polymer liquid crystal device or a distance for viewing the device. See Column 2, lines 44-50, structures given in Columns 3 and 4, Column 4, lines 65-68; Column 5, lines 1-11 and Column 5, lines 60-68.

Ohnishi et al., as discussed above, do not teach that the polymer liquid crystal fine particles have a cinnamoyl group, a spherical shape and wherein the weight average molecular weight is in a range from 5,000 to 1,000,000.

Pirwitz et al., on the other hand, disclose that the problems and disadvantages of the prior art can be overcome by providing a photosensitive material for orientating a liquid crystal comprising a derivative of a cinnamoyl group. The photosensitive orientation material provides unidirectional LC alignment to generate a high pretilt

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angle for various LC compounds, and superior thermal stability, and is suitable for mass production, especially for active matrix LC displays. The photoalignment capability is provided by the presence of a derivative of a cinaminic acid in the polymer polymer, which provides a cross-linking reaction when it is exposed to a polarized light beam.

However, it would have been obvious to one having ordinary skill in the art to add a cinnamoyl group to the polymer liquid crystal elements taught by Ohnishi et al. given that Pirwitz et al. teach that the cinnamoyl group provides photoalignment capability by providing a cross-linking reaction when it is exposed to a polarized light beam.

Furthermore, it would have been obvious to one having ordinary skill in the art to optimize the shape of the particles and the weight average molecular weight of the particle given that a spherical shape provides better packing when the particles are placed next to each other and given that a higher molecular weight polymer liquid crystal has advantages in that it can easily retain a recorded state compared with a low-molecular weight liquid crystal.

Response to Arguments

3. Applicant's arguments with respect to claims 9-12 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

4. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to SHEEBA AHMED whose telephone number is (571)272-1504. The examiner can normally be reached on Monday-Friday from 8am to 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Callie Shosho can be reached on (571)272-1123. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Sheeba Ahmed/
Primary Examiner, Art Unit 1794